## Centripetal Acceleration

If an object moves in a circle it is accelerating and there has to be an unbalanced force acting on it. If, for instance, you tie a weight on a string and swing it around over your head in a circle you can feel the centripetal force needed to keep it going in a circle. If you let go, that is remove the centripetal force, it will fly off in a straight line in whatever direction it happens to be going at that moment. Centripetal acceleration is found using the following equation:

$$a_c = v^2 / r$$

The units are as follows:

a<sub>c</sub> - centripetal acceleration

 $v^2$  - velocity squared of an object,

**r** - radius of a circle around which an object is moving.

